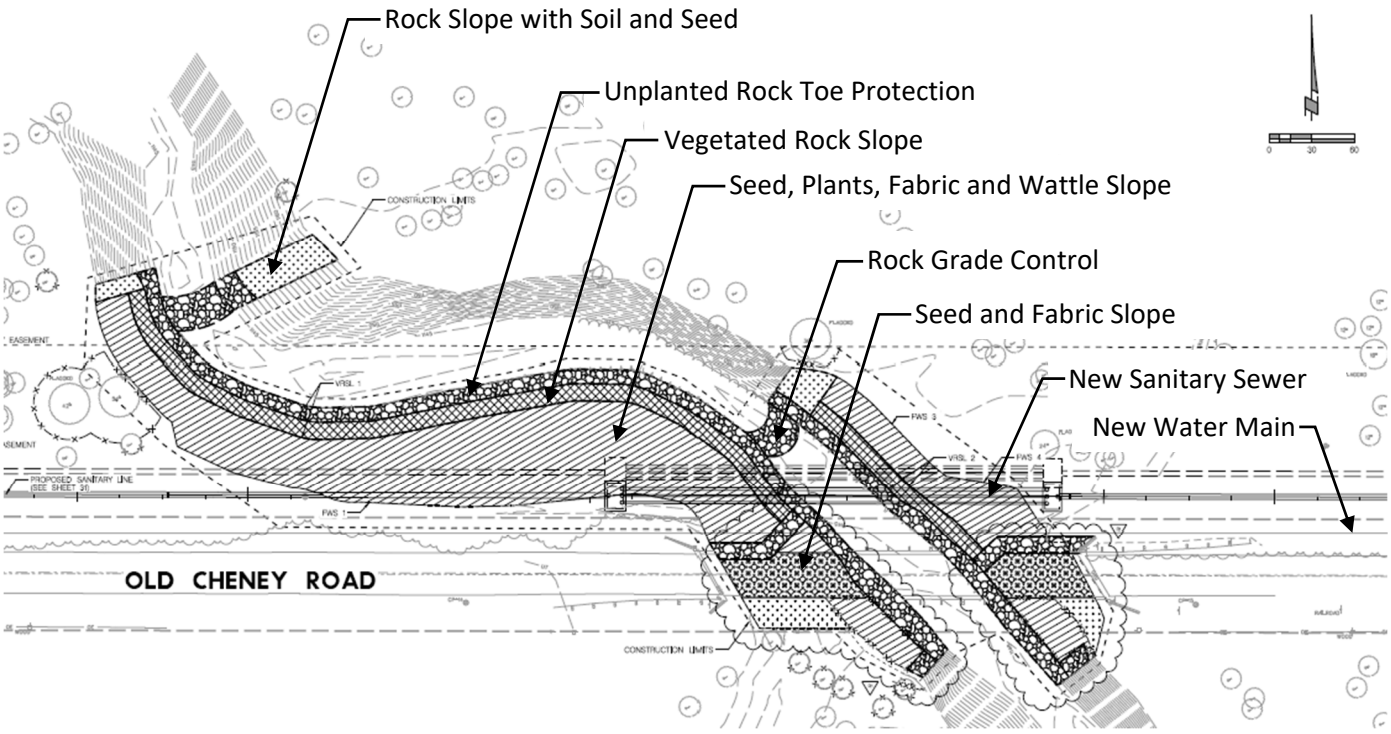
Salt Creek Channel Stabilization at Old Cheney Rd

The Lower Platte South Natural Resources District, the City of Lincoln Watershed Management and Lancaster County worked together on the design and construction of the Salt Creek Channel Stabilization Project located at Old Cheney Road Bridge. The project is the South Salt Creek Watershed Master Plan's Project #4 and was listed as a high priority in the plan. The final design to stabilize the channel and protect the bridge included the following:

- **Geomorphic Stream Assessment** was performed to assess the pre-project conditions of Salt Creek and determine the dominant process driving erosion and instability. The dominant channel process in the project area is widening characterized by large failure scarps in the channel banks. Past incision has exposed the Old Cheney Road bridge piers and the stream banks downstream of the bridge are eroding and failing.
- **Grade Control Structures** were constructed to stop future incision. Two grade controls were constructed, the first structure is immediately downstream of the bridge and is constructed of 24" diameter rock. This structure protects the bridge and the new sanitary sewer that was constructed at the same time as this project. The second grade control structure is located at the downstream end of the bank stabilization to protect the project from future downstream incision and to keep the flow exiting the project reach in the center of the channel.
- **Bio-Engineering Bank Stabilization** was used to stabilize the eroding banks. The banks were regraded to a flatter, stable slope and rock toe protection was constructed at the bottom of the slope. Vegetated rock slope was used immediately above the toe to protect the lower slope against high energy flows. The middle and upper slopes were protected with biodegradable fabric and wattles and planted with native riparian vegetation to provide a robust riparian corridor and abundant natural habitat throughout the project reach. The restoration planting palette included Buttonbush, Roughleaf Dogwood, Redosier Dogwood, Peachleaf Willow, Elderberry, Shrub Indigo, Eastern Cottonwood, Black Oak, Snowberry, Bald Cypress and a restoration seed mix containing 17 native forbs and 5 native grasses.
- **Rock Armor** was used on the lower portion of both banks under the bridge to cover the exposed bridge piers and protect the bridge from future erosion.
- **Environmental Permitting** for the project included wetland delineation and 404 permitting.

- **Cost of Channel Stabilization and Bridge Protection Components -** $1,169,796.00
- **Design Engineer** – Intuition & Logic Engineering, Inc.
- **Construction Contractor** – T.J. Osborn Construction, Inc., with Yost Excavating, Inc. as the subcontractor for the channel stabilization and bridge protection
- **Year Constructed -** 2020



South Salt Creek Project #4 Plan Sheet Illustrating the Location and Types of Improvements

The overall project at Old Cheney had multiple components and was considered a successful joint effort. The stream stabilization project as identified in the South Salt Creek Master Plan (located under and downstream of the bridge) was a LPSNRD-City of Lincoln Watershed project (50-50), with the city being the lead. The bridge protection component was a Lancaster County project. The new water line and sewer trunk line are City of Lincoln projects that were being planned when the stream stabilization project was approved. There was a great deal of coordination done between the NRD, City of Lincoln-Watershed Management, Lincoln-Water, Lincoln-Wastewater, and Lancaster County, and their engineering firms, to construct the projects simultaneously.